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ABSTRACT

A discussion of the rationale for early intervention programs, including the critical role of early experiences and the prevalence of language deprivation among children from lower socioeconomic groups, begins this paper. The distinguishing characteristics of three structured curriculum models for early intervention are reviewed: the structured cognitive approach, the structured environment approach, and the academic skills approach. Examples of experimental programs are described in relation to the curriculum models, and the goals and objectives of Project Head Start are described. Several programs with parental involvement are noted, and the effectiveness of these programs is reviewed. It is suggested that structured early intervention programs promote success during the early years of school, but a number of concerns regarding the objectives, instructional procedures, and evaluation are raised. (Author/TO)

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Effects of Early Intervention Programs

SYMPOSIUM C - "The Reading Field"

The last decade has seen increased emphasis on early childhood education in the United States. It has become axiomatic that the early years in a child's life are a critical period of growth that determines the potential for future development. According to Hunt (10), children's encounters with their environment during this period should be regulated to achieve a faster rate of intellectual development and a higher level of intellectual capacity. Bloom (2) has suggested that fifty percent of the intelligence measured at the age of seventeen has developed by the age of four and another thirty percent by the age of eight. This emphasis on the critical role of early experi-

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ences has contributed significantly to the movement toward early intervention.

Since the early 1960's, much concern has been directed toward the educational performance of minority and lower-class children. Coleman (4) found that as early as first grade children from low socioeconomic backgrounds scored significantly lower on most measures of school achievement than children from higher socioeconomic backgrounds. He observed that this gap widened as children moved through the grades. There is a concensus that many children come to school so poorly prepared because of their impoverished environment that failure is almost inevitable.

Much attention has been focused on language deprivation. Deutsch (5) observed that children of low socioeconomic groups lack the knowledge of context and of syntactical regularities which lead to comprehension of language sequences. Bereiter and Engelman (1) have concluded that these children have informal social speech which they use in play, but that they do not use formal language for acquiring and processing information as is required in school. The prevalence of this verbal deficiency has become one of the bases for large scale intervention programs.

The central question in this discussion of the effects of early intervention programs is "Can early intervention counteract the effects of deprivation?" In answering this question, other questions must be asked. Is incidental

learning or direct instruction more effective? Should emphasis be on cognitive learning or should attention be given to the development of the whole child? Should parents be involved in early intervention programs?

This paper will discuss the various curriculum models for early intervention programs, will identify the critical variations among them, and will assess their effectiveness.

Curriculum Models and Early Experimental Programs

The traditional nursery school was a precursor of the early intervention programs of today. The basic approach of the traditional program is watching and waiting for the child's needs and interests to emerge with the teacher capitalizing on informal experiences for learning.

Structured Cognitive Model

One curriculum model for intervention is a structured cognitive program based on a deficit theory and oriented toward improving aptitudes for and attitudes toward achievement. In this model, teacher-directed activities focus on improving oral language abilities, memory, concept formation, and problem solving.

One such structured cognitive program was The Early Training Project conducted by Gray and Klaus (6)(7). It attempted to offset progressive retardation of Black children living in deprived circumstances. Criteria for judging the effectiveness of the program were performance on intelli-

gence tests and reading achievement tests. One experimental group in this study had three summers of preschool, and a second group had two summers of preschool. A project teacher visited the homes of both groups weekly between summer sessions. A local control group and a group in a nearby community took all the tests but had no intervention treatment. Three years after the end of intervention, the two experimental groups remained significantly superior to the two control groups in their performance on the Stanford Binet. At the end of first grade, the experimental children scored significantly higher than the control children on the three reading subtests of the Metropolitan Achievement Test, and at the end of second grade they were significantly superior on the word knowledge and reading subtests. While there was no significant difference between the experimental and control groups at the end of fourth grade, there was a suggestion of residual effect, since in six of seven comparisons the experimental group was superior.

In the Ypsilanti Early Education Project, the children attended a Piagetian cognitively oriented preschool for two years (22). The families of these children received weekly home visits, and their parents attended group meetings. A control group received no special educational services. At the beginning of the program the two groups tested the same on the Stanford Binet. When retested at the end of kindergarten, the experimental group scored significantly higher,

but by the end of first grade the scores of the two groups were essentially the same. However, the experimental group scored higher than the control group on the California Achievement Test at the end of the second and third grades. In addition, the experimental group was rated higher by elementary teachers in academic, social, and emotional development than the control group.

Structured Environment Model

A second type of approach to intervention is a structured environment best exemplified by the Montessori curriculum. The program stresses "that children must be in touch with reality through manual activity" (17). It provides the children with "self-directed" and "self-selected" cognitive activities. Control comes from the organization of the environment rather than from the teacher as in a structured cognitive approach. Kohlberg (14) found a significant increase in IQ scores in a year-long intervention program using a Montessori curriculum.

Academic Skills Model

An approach which focuses on the development of academic skills is a third type of curriculum. The most widely used program of this type is that developed by Bereiter and Engelman (1), which is based on the premises that culturally deprived children need direct training to overcome their backwardness in skills necessary for later academic success, and that the area of greatest deficiency is their use of

formal language. The teacher directs all activities, and the children participate in highly structured prescribed activities.

While much has been written about appropriate curriculum for intervention programs, there have been few large-scale studies comparing their effectiveness. Weikart (22) compared the performance of children after one year in a traditional program directly controlled by the experimenters, a cognitively oriented Piagetian program, and a language program following the Bereiter and Engelman curriculum. He concluded that there was essentially no difference between the results of the different curricula. However, his findings suggest that a structured instructional program produces gains which are maintained into the early years of elementary school. In comparing a structured and a traditional unstructured program for four year old children, Karnes (12) found that the structured group scored significantly higher on the Stanford Binet. These findings add support to Weikart's conclusions.

Project Head Start

In the summer of 1965, Project Head Start was launched as a major federal effort to provide comprehensive intervention for preschool children. Head Start sought to bring about "greater social competence" in disadvantaged children (24). Parents and community members have been involved in

planning and evaluation, and they are used as aides and volunteers. Focusing on the development of the whole child, Head Start has attempted to enhance a child's physical well being, his self-concept, his motivation, and his emotional and intellectual development.

Within federal guidelines, each Head Start site established its own program. Many projects adopted a traditional nursery school approach, emphasizing positive self-concept and social interaction. However, many reflect considerable preoccupation with school readiness emphasizing that a child speak in sentences, name colors, know his address, and sort shapes.

Standardized measures of performance such as IQ scores, achievement tests and checklists of skills have been widely used by local sites for assessing the effectiveness of Head Start programs. Evaluating the effect of the total program nationally has been difficult because of the wide variance in objectives, program delineation, and evaluation procedures.

The Westinghouse Learning Corporation and Ohio University (23) conducted an ex post facto study to determine the extent to which the intellectual and social-personal development of children who participated in Head Start programs differed from comparable children who did not. The study compared the cognitive and affective development of a sample group of first, second, and third graders from 104 centers with a matched control group from the same schools

and grades who had not participated in Head Start. The major findings of the study included: (1) full year participants scored higher than non-Head Start children on the listening subtest and total readiness of the Metropolitan Readiness Test by a small but statistically significant margin; (2) at second grade there was no difference between the Head Start children and the control group on the Stanford Achievement Test; (3) on an attitude inventory Head Start children did not score significantly higher than the control group on their attitudes toward school and home nor were they rated higher by teachers on their desire for achievement in school. These findings indicated that the programs had limited effects for a short time with children who had participated in Head Start programs one or more years.

The Educational Testing Service (ETS) is currently conducting longitudinal evaluation of low income children from age three through third grade (21). Unlike the Westinghouse and Ohio study, the population was identified prior to the collection of data. The population is drawn nationally from four dispersed geographic regions, and variables include the family, teacher, classroom, community, and the child. Findings after one year indicated that disadvantaged children understand language and have the ability to reason. However, their understanding of language exceeds their formal use of it.

The ETS study will follow the same children a number of years to determine the degree to which primary grade curricula are congruent with and capitalize on what the child has learned in Head Start. Cross-sectional comparison groups have been used to acquire baseline data comparing the cumulative effects of intervention. Children in kindergarten through grade three attending the target area schools were tested in 1969-70, and were again administered the same tests in 1973-74. Results of the final testing are not yet available.

Some Recent Experimental Programs

In the last few years there have been a number of experimental intervention projects in addition to Head Start. Plant and Southern (18) reported the effects of two years of participation in a highly structured cognitively oriented program for Mexican-American children. The program focused on development of perceptual and motor abilities, concept formation, and language fluency. The children in the training group had significantly higher scores on tests administered in kindergarten, but this was not followed by improved performance at the end of first and second grade.

Nedler and Sebera (16) compared three intervention programs designed to increase language and communication skills of three-year-old Mexican-American children. The programs included a cognitively oriented bilingual program, a day-

care program, and a parental involvement program in which the children's performance was affected through an indirect approach. Pre- and post-test results after nine months of intervention indicated that the bilingual program raised the intellectual performance of impoverished Mexican-American children significantly more than the other programs.

Busse (3) reported on an enrichment program for Black students that involved classrooms enriched with tape recorders, cameras, and toys. Significant differences in verbal ability and in auditory perception were not found.

Programs with Parental Involvement

Recently there has been much interest in programs in which parents are instructed in how to work with their children at home. In a program with four-year-old children, Radin (19) found no discernable difference in performance between children of mothers involved in a home tutoring program and those children whose mothers were not involved. However, there was a positive effect on the attitudes of the mothers in their perception of themselves as teachers for their children.

In a home teaching project, handicapped children were taught by their parents after receiving precise instructions weekly on what to teach and on how to observe, reinforce, and record behavior (20). The children progressed above their expected developmental rate.

Attention has been given to intervention in very early infancy to prevent developmental deficiencies at the age of three or four years. Karnes (13) trained mothers to work with their infants at home in weekly meetings. This resulted in a higher mean Stanford Binet IQ score than that of children who received no intervention.

In a longitudinal study, Heber (8) attempted to mitigate retardation of high risk children in an economically disadvantaged urban area in which there was a high prevalence of cultural-familial mental retardation. Both mothers and children were involved in experimental groups. The children were in the program from the age of three months to the age of six years. At the age of sixty-six months, the experimental group was one and one-half years ahead in mental age (80.0 months) while the control group was four and one-half months below average growth (61.6 months). According to Heber, however, conclusions cannot be drawn from these studies until school performance has been observed.

Conclusion

Two questions must be asked in assessing early intervention programs: Does intervention contribute to success in school? and How lasting are the results?

The studies discussed indicate that it is essential that goals and objectives be specifically defined for intervention programs and that day-to-day activities be centered on

objectives. Evidence cited suggests that structured programs (as opposed to a traditional environmental approach) can produce significant gains through the third grade.

Within specific programs, instructional procedures must be adapted to the needs of individual children. Programs must recognize the differences between children who make progress and those who do not. Attention should be directed to specific characteristics of programs, to the children participating in them, and the interaction of the two. Hunt (11) describes this as a proper match between a child's cognitive developmental level and specific learning tasks.

All too often, early intervention programs have been inadequately evaluated. Although they are part of a major Federal effort, many Head Start programs have been poorly evaluated at the local level. Frequently evaluation has had a low priority at local sites, and the instruments used have had low predictive validity (9). While each year's group is evaluated, few long-term studies have followed children through the grades as a basis for making necessary modifications in the programs.

IQ scores have been used frequently as a criterion for assessing the effectiveness of intervention. This appears to be inadequate. Lucco (15) suggests that upward shifts in IQ performance do not necessarily reflect the cognitive development required for abstract thinking.

Other aspects of early intervention programs may be questioned. Programs seem to be designed to prepare children for success in schools as they now exist. It seems unrealistic to expect gains to be maintained unless necessary adjustments are made in the curricula of elementary schools.

In addition, children from birth through five years of age will spend a relatively small amount of time in intervention programs. Thus, these programs in themselves cannot totally offset the results of deprivation. Parents must become involved to change the home environment of the child.

The last decade has seen the emergence of early intervention programs on a wide scale. The challenge of the coming decade is the refinement of these programs on the basis of the results of evaluation.

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